

Translation

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference 2003EP07730WO	FOR FURTHER ACTION	See Form PCT/IPEA/416																								
International application No. PCT/EP2004/050941	International filing date (day/month/year) 27.05.2004	Priority date (day/month/year) 30.06.2003																								
International Patent Classification (IPC) or national classification and IPC																										
<p>Applicant SIEMENS AKTIENGESELLSCHAFT</p>																										
<p>1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of 5 sheets, including this cover sheet.</p> <p>3. This report is also accompanied by ANNEXES, comprising:</p> <p>a. <input type="checkbox"/> (sent to the applicant and to the International Bureau) a total of _____ sheets, as follows:</p> <p><input type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).</p> <p><input type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.</p> <p>b. <input type="checkbox"/> (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) _____, containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).</p> <p>4. This report contains indications relating to the following items:</p> <table> <tr> <td><input checked="" type="checkbox"/></td> <td>Box No. I</td> <td>Basis of the report</td> </tr> <tr> <td><input type="checkbox"/></td> <td>Box No. II</td> <td>Priority</td> </tr> <tr> <td><input type="checkbox"/></td> <td>Box No. III</td> <td>Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</td> </tr> <tr> <td><input type="checkbox"/></td> <td>Box No. IV</td> <td>Lack of unity of invention</td> </tr> <tr> <td><input checked="" type="checkbox"/></td> <td>Box No. V</td> <td>Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</td> </tr> <tr> <td><input type="checkbox"/></td> <td>Box No. VI</td> <td>Certain documents cited</td> </tr> <tr> <td><input type="checkbox"/></td> <td>Box No. VII</td> <td>Certain defects in the international application</td> </tr> <tr> <td><input type="checkbox"/></td> <td>Box No. VIII</td> <td>Certain observations on the international application</td> </tr> </table>			<input checked="" type="checkbox"/>	Box No. I	Basis of the report	<input type="checkbox"/>	Box No. II	Priority	<input type="checkbox"/>	Box No. III	Non-establishment of opinion with regard to novelty, inventive step and industrial applicability	<input type="checkbox"/>	Box No. IV	Lack of unity of invention	<input checked="" type="checkbox"/>	Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement	<input type="checkbox"/>	Box No. VI	Certain documents cited	<input type="checkbox"/>	Box No. VII	Certain defects in the international application	<input type="checkbox"/>	Box No. VIII	Certain observations on the international application
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Date of submission of the demand	Date of completion of this report
Name and mailing address of the IPEA/EP	Authorized officer
Facsimile No.	Telephone No.

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International application No.
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Box No. I	Basis of the report
<p>1. With regard to the language, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.</p> <p><input type="checkbox"/> This report is based on translations from the original language into the following language _____ which is the language of a translation furnished for the purposes of:</p> <p><input type="checkbox"/> international search (Rule 12.3 and 23.1(b))</p> <p><input type="checkbox"/> publication of the international application (Rule 12.4)</p> <p><input type="checkbox"/> international preliminary examination (Rule 55.2 and/or 55.3)</p>	
<p>2. With regard to the elements of the international application, this report is based on (<i>replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report</i>):</p> <p><input type="checkbox"/> the international application as originally filed/furnished</p> <p><input checked="" type="checkbox"/> the description: pages <u>1-11</u> as originally filed/furnished pages* _____ received by this Authority on _____ pages* _____ received by this Authority on _____</p> <p><input checked="" type="checkbox"/> the claims: nos. <u>1-11</u> as originally filed/furnished nos.* _____ as amended (together with any statement) under Article 19 nos.* _____ received by this Authority on _____ nos.* _____ received by this Authority on _____</p> <p><input checked="" type="checkbox"/> the drawings: sheets <u>1/2-2/2</u> as originally filed/furnished sheets* _____ received by this Authority on _____ sheets* _____ received by this Authority on _____</p> <p><input type="checkbox"/> a sequence listing and/or any related table(s) – see Supplemental Box Relating to Sequence Listing.</p>	
<p>3. <input type="checkbox"/> The amendments have resulted in the cancellation of:</p> <p><input type="checkbox"/> the description, pages _____</p> <p><input type="checkbox"/> the claims, nos. _____</p> <p><input type="checkbox"/> the drawings, sheets/figs _____</p> <p><input type="checkbox"/> the sequence listing (<i>specify</i>): _____</p> <p><input type="checkbox"/> any table(s) related to sequence listing (<i>specify</i>): _____</p>	
<p>4. <input type="checkbox"/> This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).</p> <p><input type="checkbox"/> the description, pages _____</p> <p><input type="checkbox"/> the claims, nos. _____</p> <p><input type="checkbox"/> the drawings, sheets/figs _____</p> <p><input type="checkbox"/> the sequence listing (<i>specify</i>): _____</p> <p><input type="checkbox"/> any table(s) related to sequence listing (<i>specify</i>): _____</p>	

* If item 4 applies, some or all of those sheets may be marked "superseded."

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Box No. V **Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

1. Statement

Novelty (N)	Claims	<u>1-11</u>	YES
	Claims	_____	NO
Inventive step (IS)	Claims	<u>1-11</u>	YES
	Claims	_____	NO
Industrial applicability (IA)	Claims	<u>1-11</u>	YES
	Claims	_____	NO

2. Citations and explanations (Rule 70.7)

Reference is made to the following documents:

D1: US 2002/178813 A1 (BABALA MICHAEL L)

5 December 2002 (2002-12-05)

D2: DE 198 45 185 A (DAIMLER CHRYSLER AG)

20 April 2000 (2000-04-20)

Novelty:

- 1 Document D1, which is regarded as the closest prior art, discloses a method for monitoring an angular rate sensor with a vibration gyroscope, said method having the following features: the tuning fork resonator 10, which represents a band-pass filter, is part of a control loop (see D1, paragraph [0006], which mentions a closed control loop; see also figure 3); said control loop is used to excite the tuning fork resonator at its resonant frequency; output signals are picked up (paragraphs [0006] and [0007], vibration amplitude signals 28, 29 and angular rate signal 38); analogue signals are measured and compared with threshold values using analogue components and an

Box No. V **Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**
analogue-to-digital converter (paragraphs [0032] and [0033]).

The difference between the method known from D1 and the subject matter of independent claim 1 therefore appears to consist of the following two points: the actual control loop in D1 appears to include no digital components and therefore no characteristic values can be read within such components; and D1 does not use any redundant analogue components to measure analogue signals. The subject matter of claim 1 is thus novel.

Inventive step:

- 2.1 The additional redundant analogue components may have the effect of improving overall the reliability of the monitoring procedure: the monitoring of the functioning of the angular rate sensor in D1 consists only in adding a test signal to a summing point in the closed control loop so that not only the electronics, but also the sensor *per se* is tested. However, only a proximate test takes place, from which it is not possible to distinguish which components are faulty.

- 2.2 Document D2 discloses a self-test method on an angular rate sensor, modulation leading to modification of the output signal. However, D2 also does not use redundant analogue components and therefore the combination of D1 and D2 would not lead to the invention.

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2.3 A person skilled in the art faced with the problem of making the monitoring method known from D1 or D2 more reliable (a problem continually addressed by a person skilled in the art) would avoid the use of additional (redundant) components, since they may also display faults and therefore involve the risk of additional fault messages being generated.

2.4 The subject matter of claim 1 therefore involves an inventive step.

2.5 Claims 2-11 are dependent on claim 1 and therefore likewise meet the PCT requirements for novelty and inventive step.